

BRIGHT et al. - Application No. 08/374,783Sub
63D⁹ cont'd

claims 39-41, which is incapable of growing to maturity comprising a genome which includes a genetic inhibitor of seed germination or plant development, the activity of said inhibitor being regulatable by application of said exogenous chemical inducer.

REMARKS

Reconsideration and allowance of the pending claims is respectfully requested.

Claims 27-28 and 38-52 are pending. Claims 26, 29-37 and 53-75 have been canceled without prejudice or disclaimer to pursuing the subject matter thereof in future continuation or divisional applications. Claims 39-41 and 46 have been rewritten in independent form, reciting the subject matter of canceled claims 26 and 30. Claims 27-29, 38, 42-45 and 47-52 have been amended to depend from amended claims 39-41. Support for the amended claims can be found in the claims as filed and throughout the specification. Applicants respectfully submit that no new matter has been introduced via these amendments to the claims.

The Examiner rejected claims 26-52 under 35 USC §112, first and second paragraphs, suggesting that the disclosure is not enabling for the scope of the subject matter claimed, and that the claims are indefinite. Cancellation of certain claims via this amendment should not be construed as a form of agreement with these rejections, as Applicants continue to respectfully traverse these rejections for at least the reasons recited in the response dated July 13, 2001. However, in an effort to expedite prosecution on the merits, Applicants have rewritten claims to certain embodiments of the invention which clearly are enabled by the specification. The subject matter of the cancelled claims may be pursued in various continuation and divisional applications claiming priority to the instant application. Applicants respectfully submit that

BRIGHT et al. - Application No. 08/374,783

the pending claims are definite and enabled, and that the Section 112-based rejections should be withdrawn.


The Examiner rejected claims 26-28, 35, 42 and 47-50 under 35 USC § 102(b) as being anticipated by, or in the alternative, under § 103(a) as being obvious over Bridges et al. Applicants continue to traverse this rejection for the at least the reasons set forth in the response submitted July 13, 2001.

In view of the above amendments to the claims and the foregoing remarks, Applicants respectfully assert that all of the Examiner's objections and rejections have been overcome. Accordingly, a favorable notice of allowance of the present application is respectfully requested. Should questions related to patentability remain, the Examiner is invited to contact the undersigned to discuss the same.

Respectfully submitted,

PILLSBURY WINTHROP LLP

By:


Blair Elizabeth Taylor, Ph.D.
Reg. No. 44,370
Tel. No.: (703) 905-2198
Fax No.: (703) 905-2500

1600 Tysons Boulevard
McLean, Virginia, 22102
(703) 905-2000
Enclosure: Appendix

BRIGHT et al. - Application No. 08/374,783

APPENDIX

VERSION WITH MARKINGS TO SHOW CHANGES MADE

IN THE CLAIMS:

The claims have been amended as indicated below.

39. (Twice Amended) An expression system functional in a plant comprising:

(a) an inducible promoter sequence responsive to the presence or absence of an exogenous chemical inducer;

(b) either

(i) a gene encoding a repressor protein under control of said inducible promoter; or

(ii) a gene encoding an inhibitor of the recombinase disrupter specified at (d) below under control of said inducible promoter;

(c) a plant developmental gene promoter sequence activated at a predetermined stage of plant development, which, in the case of (b)(i) above, includes an operator sequence recognized by said repressor protein, the presence of which inactivates said plant developmental gene promoter; and

(d) a gene encoding a recombinase disrupter of a plant characteristic produced by an inserted gene, the gene encoding the recombinase being under the control of said plant developmental gene promoter sequence, and the recombinase being adapted to excise a

BRIGHT et al. - Application No. 08/374,783

nucleotide sequence flanked by recombinase recognition sequences, [An expression system as claimed in claim 30, in which]

wherein the recombinase gene is the FLP gene of the 2 micron plasmid of Saccharomyces [cerevisiae] ~~cerevisiae~~ and the recognition sequences are the FRT sequences which flank all or part of [an] the inserted gene or its regulatory elements, wherein the inserted gene is a gene encoding a predetermined characteristic introduced into the plant by a recombinant DNA method,

wherein the presence or absence of the exogenous chemical inducer controls whether said characteristic is displayed in the plant, and

wherein said system does not act only to disrupt the biosynthesis of viable pollen.

40. (Twice Amended) An expression system functional in a plant comprising:

(a) an inducible promoter sequence responsive to the presence or absence of an exogenous chemical inducer;

(b) either

(i) a gene encoding a repressor protein under control of said inducible promoter; or

(ii) a gene encoding an inhibitor of the recombinase disrupter specified at (d) below under control of said inducible promoter;

(c) a plant developmental gene promoter sequence activated at a predetermined stage of plant development, which, in the case of (b)(i) above, includes an operator sequence recognized by said repressor protein, the presence of which inactivates said plant

BRIGHT et al. - Application No. 08/374,783

developmental gene promoter; and

(d) a gene encoding a recombinase disrupter of a plant characteristic produced by an inserted gene, the gene encoding the recombinase being under the control of said plant developmental gene promoter sequence, and the recombinase being adapted to excise a nucleotide sequence flanked by recombinase recognition sequences, [An expression system as claimed in claim 30],

wherein the recombinase gene is the Cre gene of bacteriophage P1 and its recognition sequence or the lox sequences which flank all or part of [an] the inserted gene or its regulatory elements, wherein the inserted gene is a gene encoding a predetermined characteristic introduced into the plant by a recombinant DNA method,

wherein the presence or absence of the exogenous chemical inducer controls whether said characteristic is displayed in the plant, and

wherein said system does not act only to disrupt the biosynthesis of viable pollen.

41. (Twice Amended) An expression system functional in a plant comprising:

(a) an inducible promoter sequence responsive to the presence or absence of an exogenous chemical inducer;

(b) either

(i) a gene encoding a repressor protein under control of said inducible promoter; or

(ii) a gene encoding an inhibitor of the recombinase disrupter specified at

BRIGHT et al. - Application No. 08/374,783

(d) below under control of said inducible promoter;

(c) a plant developmental gene promoter sequence activated at a predetermined stage of plant development, which, in the case of (b)(i) above, includes an operator sequence recognized by said repressor protein, the presence of which inactivates said plant developmental gene promoter; and

(d) a gene encoding a recombinase disrupter of a plant characteristic produced by an inserted gene, the gene encoding the recombinase being under the control of said plant developmental gene promoter sequence, and the recombinase being adapted to excise a nucleotide sequence flanked by recombinase recognition sequences, [An expression system as claimed in claim 30], wherein the recombinase gene is the Activator transposase of Zea mays,

wherein the presence or absence of the exogenous chemical inducer controls whether said characteristic is displayed in the plant, and

wherein said system does not act only to disrupt the biosynthesis of viable pollen.

27. (Twice Amended) An expression system as claimed in [claim 26] any of claims 39-41, wherein [where] the plant characteristic controlled by the system is essential to plant growth, whereby the presence or absence of the exogenous chemical inducer induces a response selected from the group consisting of growth to maturity, retarded growth and growth cessation at said predetermined stage.

28. (Amended) An expression system as claimed in [claim 26 or claim 27] any of claims

BRIGHT et al. - Application No. 08/374,783

39-41, wherein said inducible promoter sequence is functionally linked to and controls a repressor protein gene and in which the disrupter gene promoter includes an operator sequence recognized by said repressor protein, so that in the presence of the inducer the repressor protein is produced which interacts with the operator sequence disabling the plant developmental gene promoter and inhibiting expression of the disrupter gene.

38. (Twice Amended) An expression system as claimed in [claim 35] any of claims 39-41, wherein said plant developmental gene sequence is a promoter selected from the group consisting of the gene promoters of malate synthase genes, germin genes, glyoxysomal enzyme genes, aleurone layer genes and carboxypeptidase genes.

42. (Amended) An expression system as claimed in [claim 26] any of claims 39-41, wherein the inducible promoter is the promoter of the gene encoding the 27 kd protein of glutathione-S-transferase II.

43. (Amended) An expression system as claimed in [claims 26] any of claims 39-41, wherein said inducible promoter comprises the promoter of the AlcA gene, the system further comprising a gene capable of expressing the AlcR protein alcA and alcR being obtainable from *Aspergillus*.

44. (Amended) An expressioo system as claimed in [claim 26] any of claims 39-41, which comprises a repressor protein gene, wherein said repressor protein gene encodes the lacc

BRIGHT et al. - Application No. 08/374,783

repressor or a repressor used by 434, P22 or lambdabacteriophages.

45. (Amended) An expression system as claimed in [claim 26] any of claims 39-41, which comprises a repressor protein gene, wherein said repressor protein is the tet repressor.

46. (Twice Amended) An expression system [as claimed in claim 26 wherein the] functional in a plant comprising:

(a) an inducible promoter sequence responsive to the presence or absence of an exogenous chemical inducer;

(b) a gene encoding a protein inhibitor of barnase specified at (d) below and containing the coding region of the barstar gene, under control of the said inducible promoter;

(c) a plant developmental gene promoter sequence activated at a predetermined stage of plant development;

(d) a disrupter gene which encodes barnase, under the control of the plant developmental gene promoter sequence;

whereby the presence or absence of the exogenous chemical inducer controls whether barnase disrupts cell survival in the plant [and the gene encoding the inhibitor of the disrupter gene contains the coding region of the barstar gene which on expression produces a protein inhibitor of barnase].

47. (Twice Amended) An isolated [A] plant genome transformed via an expression system as claimed in [claim 26] any of claims 39-41.

BRIGHT et al. - Application No. 08/374,783

48. (Amended) An isolated [A] plant having transformed genome as claimed in claim 47.

49. (Amended) An isolated [A] plant part having a transformed genome as claimed in claim 47.

50. (Amended) An isolated [A] plant cell having a transformed genome as claimed in claim 47.

51. (Amended) Protected plant germplasm comprising a plant engineered to comprise the [gene] expression system of [claim 26] any of claims 39-41 comprising a gene capable of inhibiting development of the plant beyond a [selected] predetermined development stage, wherein application of the exogenous chemical inducer to the plant overcomes the inhibitory effect of the development inhibiting gene.

52. (Amended) A plant or seed engineered to comprise the expression system of [claim 26] any of claims 39-41, which is incapable of growing to maturity comprising a genome which includes a genetic inhibitor of seed germination or plant development, the activity of said inhibitor being regulatable by application of said exogenous chemical inducer.